15. (Amended) The method of claim 14 wherein at least two of said cluster data features correspond to different [structures] analyte-specific signal elements positioned along different turns of said disc.

A2

16. (Amended) The method of claim 13 wherein said discontinuous pattern includes multiple data features that correspond to said at least one [nonoperational structure] readable analyte-specific signal element.

17. (Amended) The method of claim 13 wherein said discontinuous pattern comprises at least one discontinuity between two continuous regions, and wherein said discontinuity itself reports a physical property of said [nonoperational structure] at least one readable analyte-specific signal element.

A3

24. (Amended) The method of claim 1 wherein said reported physical property inheres in said [nonoperational structure] at least one readable analyte-specific signal element.

A4

26. (Amended) The method of claim 25 wherein said [nonoperational structure] at least one readable analyte-specific signal element produces [a substantial] an analog signal that has a substantial magnitude in only one turn of a disc.

A5

28. (Amended) The method of claim 27 wherein said at least one [nonoperational structure] readable analyte-specific signal element produces [a substantial] analog signal that has a substantial magnitude in at least two different turns of a disc.

A6

31. (Amended) The method of claim 1 wherein said identifying comprises identifying a plurality of [nonoperational features] readable analyte-specific signal elements, said method further comprising counting said

plurality of [nonoperational features] readable analyte-specific signal elements.

32. (Amended) The method of claim 1 wherein said physical property depends at least in part upon disposition of said at least one [nonoperational structure] readable analyte-specific signal element on said disc.

A6 Cont...

33. (Amended) The method of claim 32 wherein said physical property depends on an optical interaction between a laser beam, said at least one [nonoperational structure] readable analyte-specific signal element, and the disc.

34. (Amended) The method of claim 33 wherein said [nonoperational structure] at least one readable analyte-specific signal element is a translucent bead and said optical interaction is a lensing effect of said bead.

Sub b1

39. (Amended) A method of analyzing data generated by reading a trackable optical disc having a plurality of physically nonidentical concurrently readable [nonoperational structures] analyte-specific signal elements, said method comprising identifying patterns in said data that distinguish among said physically nonidentical [nonoperational structures] analyte-specific signal elements.

A7

Sub b1

53. (Amended) The method of claim 52 wherein at least two of said cluster data features correspond to [structures] analyte-specific signal elements positioned along different turns of said disc.

A8

54. (Amended) The method of claim 51 wherein said discontinuous pattern includes multiple data features that correspond to at least one [nonoperational structure] of said analyte-specific signal elements.

Sub b1

56. (Amended) The method of claim 55 wherein at least one of said [nonoperational structures produce]

A9

analyte-specific signal elements produces a discernable and substantial analog [signals in] signal from only one turn of a track.

A9 Cont.

57. (Amended) The method of claim 55 wherein said plurality of [structures] analyte-specific signal elements comprises at least two classes of [structures] elements, said method further comprising counting the number of at least one class of said [structures] elements.

59. (Amended) The method of claim 55 wherein said at least one class of [nonoperational structure] analyte-specific signal elements produces [a substantial] an analog signal that has a substantial magnitude in two or more different turns of a track.

A10

61. (Amended) The method of claim 39 wherein at least one of said patterns depends at least in part upon disposition of said [structures] analyte-specific signal elements on said disc.

A11

62. (Amended) The method of claim 61 wherein said pattern depends on an optical interaction between a laser beam, at least one [nonoperational structure] of said analyte-specific signal elements, and the disc.

63. (Amended) The method of claim 62 wherein said [nonoperational structure] at least one analyte-specific signal element is a translucent bead and said optical interaction is a lensing effect of said bead.

75. (Amended) A method in a computer system of determining the relative physical locations of a first [nonoperational structure] analyte-specific signal element and a second [nonoperational structure] analyte-specific signal element on a surface of an optical disc, said method comprising:

A12

reading said optical disc to generate data;

identifying in the data (i) a first pattern that reports a physical property of said first [nonoperational structure] analyte-specific signal element and (ii) a second pattern that reports a physical property of said second [nonoperational structure] analyte-specific signal element; and

A12 cont...

calculating at least relative physical locations of said first and second [nonoperational structures] analyte-specific signal elements on the disc.

A13

82. (Amended) The method of claim 81 wherein said predetermined mapping routine uses a known position on said disc to [mapping] map said patterns.

A14

85. (Amended) The method of claim 75 wherein said first and second [nonoperational structures] analyte-specific signal elements are physically nonidentical, said identifying comprising distinguishing between and said first and second patterns.

A15

89. (Amended) A method in a computer system of mapping the physical locations of [nonoperational structures] analyte-specific signal elements on a surface of an optical disc, comprising:

determining a relative physical location of at least one of said [nonoperational structures] analyte-specific signal elements; and

marking [an] a representation of the surface of an optical disc with at least one object that reflects said at least one relative physical location.

90. (Amended) The method of claim 89 wherein said method of determining comprises:

reading said optical disc to generate data;

identifying in the data: (i) a first pattern that reports a physical property of said first [nonoperational structure] analyte-specific signal element and (ii) a second pattern that reports a physical property of

said second [nonoperational structure] analyte-specific signal element; and

calculating relative physical locations of said first and second [nonoperational structures] analyte-specific signal elements on the disc.

A15 cont...

91. (Amended) The method of claim 89 wherein at least one of said [nonoperational structures] analyte-specific signal elements includes a plurality of distinguishable objects.

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93. (Amended) A method in a computer system of classifying an object having at least one sub-centimeter dimension, said method comprising:

A16

generating data by reading a trackable optical disc upon or within which said object is disposed as a concurrently readable [nonoperational structure] analyte-specific signal element; and

identifying a pattern in said data that reproducibly distinguishes said object.

A17

107. (Amended) The method of claim 106 wherein at least two of said cluster data features correspond to one of either (a) different [structures] analyte-specific signal elements or (b) different portions of a single [structure] analyte-specific signal element, that are positioned along different turns of said disc.

108. (Amended) The method of claim 105 wherein said discontinuous pattern includes multiple data features that correspond to at least one [nonoperational structure] analyte-specific signal element.

109. (Amended) The method of claim 105 wherein said discontinuous pattern comprises at least one discontinuity between two continuous regions, and wherein said discontinuity itself reports a physical property of said [nonoperational structure] analyte-specific signal element.

110. (Amended) The method of claim 109 wherein said discontinuity indicates that said continuous regions correspond to [structures] analyte-specific signal elements on tracks that are substantially tangentially located with respect to one another.

A17 cont...

111. (Amended) The method of claim 110 wherein said discontinuity indicates that said continuous regions correspond to [structures] analyte-specific signal elements on a single turn.

112. (Amended) The method of claim 110 wherein said identifying comprises associating result objects that correspond to said [structures] analyte-specific signal elements.

A18

117. (Amended) The method of claim 93 wherein said identifying comprises using a physical property that depends at least in part upon disposition of said at least one [nonoperational structure] analyte-specific signal element on said disc.

118. (Amended) The method of claim 117 wherein said physical property depends on an optical interaction between a laser beam, at least one [nonoperational structural structure] analyte-specific signal element, and the disc.

119. (Amended) The method of claim 118 wherein said [nonoperational structure] analyte-specific signal element is a translucent bead and said optical interaction is a lensing effect of said bead.

A19

Sub B1

133. (Amended) A method for analyzing data comprising:

retrieving said data acquired from a trackable optical disc with concurrently readable [nonoperational structures] analyte-specific signal elements;

analyzing said data;

A19 amd.

generating at least one result object; and
outputting said at least one result object.

A20

148. (Amended) The method of claim 137 wherein said data are selected from a group consisting of operational data, [nonoperational] analyte-specific signal element data, and a combination thereof.

A21

159. (Amended) The method of claim 158 wherein said analyzing comprises distinguishing operational data features from [nonoperational] analyte-specific signal element data features.

A22

163. (Amended) The method of claim 162 wherein said decoding comprises:

identifying at least one of said [nonoperational] analyte-specific signal element data features; and

counting said [nonoperational] analyte-specific signal element data features.

A23

182. (Amended) A computer readable medium containing data acquired from an optical disc with a spiral track that includes concurrently readable [nonoperational structures] analyte-specific signal elements.

A24

184. (Amended) The medium of claim 183 wherein said data includes at least one result object that indicates the position of at least one of said [nonoperational structures] analyte-specific signal elements detected on a surface of said disc.

A25

186. (Amended) A computer readable medium containing instructions for analyzing data from an optical disc with a spiral track that includes concurrently readable [nonoperational structures] analyte-specific signal elements.

187. (Amended) A system for analyzing data acquired from a spiral trackable optical disc with concurrently readable [nonoperational structures] analyte-specific signal elements, said system comprising a computer capable of retrieving said data, analyzing said data, generating at least one result object, and outputting said at least one result object.

A25 cont...

188. (Amended) A system for remotely analyzing data, said system comprising:

a client computer capable of:

acquiring data from a trackable optical disc with concurrently readable [nonoperational structures] analyte-specific signal elements, and

transmitting said data over a remote connection; and

a server computer capable of:

receiving said data over the remote connection,

analyzing said data, and

generating at least one result object from said data.

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192. (Amended) The system of claim 189 wherein said server computer is capable of analyzing by identifying patterns in said data that reproducibly distinguish underlying [structures] analyte-specific signal elements.

A26

193. (Amended) The system of claim 189 wherein said server computer is capable of analyzing by identifying a pattern in said data that reports a physical property of at least one of said [nonoperational structures] analyte-specific signal elements.

194. (Amended) The system of claim 189 wherein said client computer is capable of acquiring data by reading a disc that has a plurality of physically nonidentical concurrently readable [nonoperational structures] analyte-

specific signal elements, and wherein said server computer is capable of analyzing said data by identifying patterns in said data that distinguish among said physically nonidentical [nonoperational structures] analyte-specific signal elements.

195. (Amended) The system of claim 189 wherein said client computer is capable of reading the optical disc to generate data, and wherein said server computer is capable of:

A26 cont.

analyzing the data by identifying in the data (i) a first pattern that reports a physical property of a first [nonoperational structure] analyte-specific signal element and (ii) a second pattern that reports a physical property of a second [nonoperational structure] analyte-specific signal element; and

calculating at least relative physical locations of said first and second [nonoperational structures] analyte-specific signal elements on the disc.

196. (Amended) The system of claim 189 wherein said server computer is capable of analyzing by mapping physical locations of [structural nonoperational structures] analyte-specific signal elements on a surface of an optical disc by:

determining a relative physical location of at least one of said [nonoperational structures] analyte-specific signal elements; and

marking a representation of the surface of an optical disc with at least one object that reflects said at least one relative physical location.

197. (Amended) The method of claim 188, wherein said disc is trackable and said [nonoperational structure] analyte-specific signal element is concurrently readable with said disc's trackable attributes.

A27

200. (Amended) A visual display of at least one software-generated object, wherein said object reports a

physical property of [a nonoperational structure of] an analyte-specific signal element disposed on an optical disc.

A27 Amd.

201. (Amended) The display of claim 200, wherein said property is the position of said [nonoperational structure] analyte-specific signal element on said disc.

202. (Amended) The display of claim 200, wherein said property is the size, in at least one dimension, of said [nonoperational structure] analyte-specific signal element.

A28

205. (Amended) A method for automatically selecting an amplitude threshold for use in counting [nonoperational structures] analyte-specific signal elements in data acquired by reading an optical disc having at least one readable [nonoperational structure] analyte-specific signal element, said method comprising:

processing a number of different estimated amplitude thresholds, said method comprising processing each of said different estimated amplitude thresholds by:

selecting an estimated amplitude threshold,

decoding said data using said estimated threshold to generate a result object, said result object at least comprising widths of decoded [nonoperational] analyte-specific signal element features,

segregating said widths into a series of width segments, and

selecting a peak segment from said series of width segments, wherein said peak segment includes a maximum number of said decoded features; and

selecting an optimal threshold from said different estimated thresholds, wherein said optimal threshold is the estimated threshold that causes said decoding to produce a largest of said maximum number of features that fall within its peak segment.